

crystal material between a crystalline phase at a room temperature to an isotropic phase in a final state through a smectic phase at an elevated temperature, and a thickness of the gap between the electrodes being smaller than a domain size of the liquid crystal compound in a cooled state from the isotropic phase in a final state" (emphasis added). Shimizu does not teach or suggest such a device.

The Office Action asserts that Shimizu discloses a device including a pair of electrodes with a ferromagnetic liquid crystal material provided in a gap between the electrodes. The Office Action relies on Clark to argue that the ferromagnetic liquid crystal undergoes phase transfer in response to change in temperature. The Office Action further asserts that the gap thickness recited in claim 23 is inherent in the teachings of Shimizu because Shimizu allegedly discloses the same liquid crystal material as recited in claim 23. Notwithstanding these assertions, Shimizu does not anticipate and would not have rendered obvious the device of claim 23.

The Office Action correctly points out that Clark discloses properties of smectic liquid crystal materials such as disclosed in Shimizu. However, there is no disclosure in Shimizu or Clark that charge-transport properties of the disclosed liquid crystal materials are varied according to a phase transfer. Rather, in Shimizu, liquid crystal materials are selected so that optical orientation of the liquid crystal material can be manipulated during recording. There is nothing in Shimizu or Clark that suggests that the properties recited in claim 23 (e.g., "said liquid crystal material having a property such that charge-transport properties are varied according to a phase transfer") are inherent in the materials of Shimizu. As the Office Action fails to demonstrate (a) that the liquid crystal material in Shimizu has the charge-transport properties of the liquid crystal material recited in claim 23, or (b) that all liquid crystal materials have the charge-transport properties of the liquid crystal material recited in claim

23, the Office Action has failed to demonstrate that the Shimizu reference explicitly or inherently discloses each and every feature of claim 23.

Also, as indicated above, the Office Action asserts that the gap thickness recited in claim 23 is inherent in the teachings of Shimizu because Shimizu allegedly discloses the same liquid crystal material as recited in claim 23. At the outset there is no explicit teaching or suggestion in Shimizu of a device having a gap thickness selected to be smaller than a domain size of an employed liquid crystal material. With respect to the Office Action's inherency argument, even if Shimizu disclosed the same liquid crystal material having the same domain size in a particular state as recited in claim 23 (which Applicants do not concede), this teaching alone would have no bearing on whether Shimizu teaches or suggests selecting a particular gap thickness for the device. The gap thickness is a structural feature of the device, not a structural feature of the liquid crystal material. One could assemble two devices including the same liquid crystal materials and yet employ different gap thicknesses for the respective devices. As different gap thicknesses are possible, neither can be said to be inherent. *See, e.g.*, MPEP §2112.

As Shimizu (even when viewed in light of Clark) fails to teach or suggest a device including (a) a liquid crystal compound in which charge-transport properties are varied according to a phase transfer, and (b) a thickness of a gap between electrodes smaller than a domain size of the liquid crystal compound in a particular state, Shimizu fails to teach or suggest each and every feature of claim 23.

Claim 23 is not anticipated by Shimizu. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §102/§103

The Office Action rejects claims 13-23 under 35 U.S.C. §102(b), or in the alternative under 35 U.S.C. §103(a), over EP 763 532 to Hanna et al. ("Hanna"). Applicants respectfully traverse the rejection.

Claim 23 is set forth above. Claim 13 similarly recites "[a]n information recording medium comprising: a pair of electrodes; a liquid crystal material filled into a gap between said electrodes, the liquid crystal material comprising a rod-shape liquid crystal compound, said liquid crystal material having a property such that charge-transport properties are varied according to a phase transfer the thickness of the gap between the electrodes being smaller than a domain size of the liquid crystal compound in a cooled state from the isotropic phase in a final state." Claim 13 further recites "a thickness of the gap between the electrodes being larger than a domain size of the liquid crystal compound at least in the initial state of the liquid crystal material." Hanna does not teach or suggest such a device or such a medium.

As with Shimizu above, the Office Action asserts that the gap thicknesses recited in claim 13 and 23 are inherent in the teachings of Hanna because Hanna allegedly discloses the same liquid crystal material as recited in claims 13 and 23. Notwithstanding this assertion, Hanna does not anticipate and would not have rendered obvious the medium of claim 13 or the device of claim 23.

At the outset there is no explicit teaching or suggestion in Hanna of a medium or device having a gap thickness selected to be smaller than a domain size of an employed liquid crystal material in a particular state (claims 13 and 23), or having a gap thickness selected to be larger than a domain size of the liquid crystal compound in another state (claim 13). With respect to the Office Action's assertion that such gap thicknesses are inherent in the teachings of Hanna, Applicants again note that even if Hanna disclosed the same liquid crystal material having the same domain sizes in the states recited in claims 13 and 23, this teaching alone

would have no bearing on whether Hanna teaches or suggests selecting particular gap thicknesses for the recited medium and device. Gap thickness is a structural feature of the medium and the device, not a structural feature of the recited liquid crystal compounds. One could assemble two mediums or two devices including the same liquid crystal materials and yet employ different gap thicknesses for the respective mediums or devices. As different gap thicknesses are possible, neither can be said to be inherent. *See, e.g., MPEP §2112.*

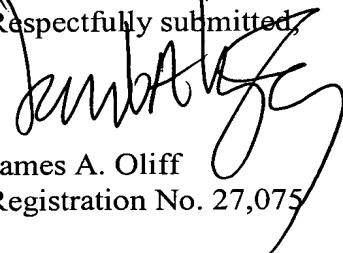
As Hanna fails to disclose device or a medium having a gap thickness selected to be smaller than a domain size of an employed liquid crystal material in a particular state, or a medium having a gap thickness selected to be larger than a domain size of the liquid crystal compound in another state, Hanna fails to teach or suggest each and every feature of claims 13 and 23.

Claims 13 and 23 are not anticipated by and would not have been rendered obvious by Hanna. Claims 14-22 depend from claim 13 and, thus, also are not anticipated by and would not have been rendered obvious by Hanna. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 13-34 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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